What is claimed is

~~Patent Claims:~~

1. A new gene containing a DNA sequence coding for hydroxynitrile lyase, which gene can be prepared via a primer combination based on the DNA sequence of the 5'-region of the *mdl* genes from *Prunus serotina* and from *Prunus amygdalus* and/or a primer 2 based on the 3'-region of the DNA sequences of one of the hydroxynitrile lyase isoenzymes from *Prunus serotina* or from *Prunus amygdalus*, subsequent amplification with a DNA polymerase using a DNA from organisms, containing genes coding for hydroxynitrile lyase, as templates and cloning.

2. The new gene as claimed in claim 1, which can be prepared from primers based on the sequences of the *Prunus amygdalus* MDL1 gene and of one of the *Prunus serotina mdl* genes, and the subsequent amplification and cloning.

3. The new gene as claimed in claim 1, which can be prepared from primers based on the sequences of the *Prunus serotina mdl5* gene and of the *Prunus amygdalus* MDL1 gene, subsequent amplification and cloning, which gene has the nucleotide sequence depicted in figure 1 or is at least 80% identical thereto.

4. The new gene as claimed in claim 1, which can be prepared from primers based on the sequenc of the *Prunus serotina mdl1* gene, subsequent amplification and cloning, which has the nucleotide sequence depicted in figure 8 or is at least 80% identical thereto.

5. The new gene as claimed in claim 1,which has the nucleotide sequence depicted in figure 1 from nucleotide 13 until nucleotide 2151 continuously or without the intron regions from nucleotide 116 until 257, 918 until 1120 and 1962 until 2077.

6. The new gene as claimed in claim 1,which has the nucleotide sequence depicted in figure 8 from nucleotide 1 until nucleotide 2083 continuously or without the intron regions from nucleotide 104 until 249, 907 until 1047 and 1889 until 1993.

7. A recombinant protein, which can be prepared in suitable host cells by heterologous expression of the DNA sequence of the *Prunus amygdalus HNL* genes as claimed in any of claims 1 to 6.

8. The recombinant protein as claimed in claim 7, which comprises host-specific glycosylation.

9. The recombinant protein as claimed in claim 7, wherein said protein is prepared by expression in a eukaryotic microorganism.

10. The recombinant protein as claimed in claim 7, wherein said protein is prepared by expression in a fungus.

11. The recombinant protein as claimed in claim 7, wherein the protein has the amino acid sequence derived from the nucleotide sequence of the gene as claimed in claim 3 or 4.

12. The use of a DNA sequence of genes as claimed in claim 1 to 6, which codes for the signal peptide of a hydroxynitrile lyase of Rosacea species for secretory expression of heterologous proteins with hydroxynitrile lyase activity in host cells.

13. A fusion protein or heterologous protein with hydroxynitrile lyase activity which can be prepared by using a DNA sequence of genes as claimed in claim 1 to 6, which codes for the signal peptide of a hydroxynitrile lyase of Rosacea species, and by secretory expression thereof in host cells.

14. The fusion protein as claimed in claim 13, wherein the fusion protein has the nucleic acid sequence depicted in figure 4, comprising sequences of the gene as claimed in claim 3 and the *Aspergillus niger* glucose oxidase gene, and also the amino acid sequence according to figure 5, which is derived from said nucleic acid sequence.

15. The recombinant protein as claimed in claim 7, which either has been truncated at the C-terminal end or in which the sequences in the N- and C-terminal region have been replaced by those of a related protein with different functions.

16. The use of proteins as claimed in any of claims 7-11 or 13-15 for preparing (R)-or (S)-cyanohydrins.

17. A process for preparing (R)-or (S)-cyanohydrins, which comprises reacting aliphatic, aromatic or heteroaromatic aldehydes and ketones with proteins as claimed in any of claims 7-11 or 13-15 in an organic, aqueous or 2-phase system or in emulsion in the presence of a cyanide group donor.